We claim:

1. Toxin detection apparatus comprising a plurality of hollow tubes forming a main chamber for receiving a tissue sample, first and second end chambers on opposite ends of the main chamber, a removable reagent cap for positioning within the first chamber, a reagent in the reagent cap for expressing on the tissue sample in the chambers, an assay in the second end chamber for assaying substances leached from the tissue sample, and a spectroscope for analyzing the substances for detecting toxins.

2. The apparatus of claim 1, wherein the plurality of tubes comprises on the first end chamber an open-ended tissue coring tube for collecting tissue sample.

3. The apparatus of claim 2, wherein the plurality of tubes comprises on the second end chamber a closed-ended assay tube forming the assay for analyzing the tissue sample.

4. The apparatus of claim 3, wherein the reagent cap comprises first and second squeezable reagent caps interchangeably coupled to the coring tube for pushing the tissue sample and the first and second reagents respectively into the main chamber.

5. The apparatus of claim 4, wherein the first reagent int he first reagent cap comprises a solvent and the second reagent in the second reagent cap comprises a suspension comprising silver colloid particles and antibody specific for analytes of interest in the tissue sample.

6. The apparatus of claim 5, further comprising a solution formed by the reagent and the analytes and a filter for filtering the solution into the assay tube for analysis.

7. The apparatus of claim 6, wherein the filter comprises glass wool or similar filtration media. JSMZ 7/9/01 CSO 7/4/01

8. The apparatus of claim 6, further comprising a protective cap for covering the second end of the reaction chamber.

9. The apparatus of claim 1, wherein the coring tube is beveled to facilitate sample collection.

10. The apparatus of claim 1, further comprising connectors on the first end chamber and complementary fasteners on the reagent cap for removably connecting the reagent cap to the first end chamber.

11. The apparatus of claim 10, wherein the connectors and fasteners are threads.

12. The apparatus of claim 4, wherein the reagent cap comprises a hollow chamber for containing the reagents, and an open-ended hollow tube connecting the hollow chamber and the main chamber through the coring tube when the reagent cap is coupled to the first end chamber, wherein the squeezable reagent cap expresses the reagent from the hollow chamber into the main chamber on squeezing.

13. The apparatus of claim 12, further comprising a thin rupturable membrane between the hollow chamber and the hollow tube for rupturing and expressing the reagents.

14. The apparatus of claim 2, wherein the coring tube further comprises bevelled tips.

15. The apparatus of claim 3, further comprising an energy source for supplying optical energy to the assay tube and a detector for detecting optical energy from the assay tube.

16. The apparatus of claim 15, wherein the optical energy comprises radiation of varying wavelengths and intensities, and wherein the assay tube reflects, shifts or scatters the optical energy for detecting with the detector.

17. The apparatus of claim 16, wherein the detector comprises a charge-coupled device.

18. The apparatus of claim 16, further comprising a computing device for analyzing data collected by the detector, comparing analyzed data with data of control samples, quantifying and outputting analysis results corresponding to detected toxins.

19. The apparatus of claim 1, wherein the tissue sample is a seafood tissue sample.

20. The apparatus of claim 1, wherein the tissue sample is a fish tissue sample.

21. Method of detecting toxins comprising providing a corer, removing a tissue sample with the corer, coupling the corer to a receiver, providing the tissue sample in the receiver, coupling a squeezable reagent cap to the corer, providing reagent in the reagent cap, squeezing the reagent cap to supply the reagent and to position the tissue sample in the receiver, reacting the reagent with substances in the tissue sample,

forming a solution with the reagent and the substances, coupling an assay tube to the receiver, supplying the solution to the assay tube, assaying the solution, generating and detecting signals from the assaying, analyzing the signals, and determining toxins in the tissue sample.

22. The method of claim 21, wherein the generating and the detecting of signals comprises supplying optical energy to the assay tube for the assaying, detecting fluorescence of the substances, and analyzing the detected fluorescence by fluorescence spectroscopy.

23. The method of claim 21, wherein the supplying the reagent comprises supplying a solvent.

24. The method of claim 21, wherein the supplying the reagent comprises supplying an antibodies specific to an analyte of interest in the tissue sample.

25. The method of claim 21, wherein the generating and the detecting of the signals comprises assaying for the antibodies and generating immunological responses and analyzing the responses by Raman spectroscopy.

26. The method of claim 21, further comprising computing the analyzed signals, comparing with a control sample, identifying and determining toxins in the tissue sample.

27. A method of detecting toxins, comprising the steps of:

a. detaching a reagent cap from a main body;

b. exposing an open-ended coring tube;

c. pressing the coring tube into a tissue source, excising and trapping a tissue sample within the coring tube;

d. coupling the coring tube and the reagent cap to the main body;

e. pushing the tissue sample into the main body with a hollow delivery tube of the reagent cap;

f. pressing the reagent cap, expressing desired quantities of reagent from the reagent cap through the delivery tube into the main body and contacting the tissue sample with the reagent;

g. mixing the tissue sample and the substances, laying the main body horizontally for a period of time, leaching toxins from the tissue sample with the reagent and forming a solution;

h. positioning the main body vertically, flowing the solution through a filter to a sealed assay tube;

i. removing a protective cap from the assay tube, exposing the assay tube;

j. analyzing contents of the exposed assay tube by spectroscopy; and

k. computing and determining quantity and identity of the toxins in the tissue sample.

28. The method of claim 27, wherein the expressing comprises supplying the reagent as a solvent.

29. The method of claim 28, wherein the supplying the solvent comprises supplying methanol-d4.

30. The method of claim 27, wherein the analyzing comprises analyzing by fluorescence spectroscopy.

31. A method of detecting toxins, comprising the steps of:

a. detaching a first reagent cap from a main body;

b. exposing an open-ended coring tube;

c. pressing the coring tube into a tissue source, excising and trapping a tissue sample within the coring tube;

d. coupling the coring tube and the first reagent cap to the main body;

e. pushing the tissue sample into the main body with a hollow delivery tube of the first reagent cap;

f. pressing the first reagent cap, expressing desired quantities of a first reagent from the reagent cap through the delivery tube into the main body and contacting the tissue sample with the first reagent;

g. mixing the tissue sample and the first reagent, laying the main body horizontally for a period of time, leaching toxins from the tissue sample with the first reagent and forming a solution;

h. holding the main body with the coring end upright, removing the first reagent cap, replacing with a second reagent cap, supplying a second reagent from the second reagent cap, mixing the reagent and the solution, and laying the main body horizontally for a period of time;

i. positioning the main body vertically, flowing the solution through a filter to a sealed assay tube;

j. removing a protective cap from the assay tube, exposing the assay tube;

k. analyzing contents of the exposed assay tube by spectroscopy; and

l. computing and determining quantity and identity of the toxins in the tissue sample.

32. The method of claim 31, wherein the expressing comprises supplying the first reagent as a solvent.

33. The method of claim 32, wherein the supplying the solvent comprises supplying methanol-d4.

34. The method of claim 31, wherein the expressing comprises supplying the second reagent as a MAb-CTX in a silver colloid suspension.

35. The method of claim 31, wherein the analyzing comprises analyzing by SERS or Raman spectroscopy.